WHAT IS CLAIMED IS:

1. A method of manufacturing a display device comprising:

forming a plurality of columnar spacers, having heads, on a surface of a substrate;

forming a coating material film, having a flat upper surface, on the surface of the substrate on which the plurality of columnar spacers are formed so that the heads of the columnar spacers protrude from the flat upper surface of the coating material film; and

polishing the protruded heads of the columnar spacers using the flat upper surface of the coating material film as a reference, until top faces of the columnar spacers are flush with the flat upper surface of the coating material film.

2. The method according to claim 1, wherein the plurality of columnar spacers are formed on the surface of the substrate on which a plurality of pixel electrodes are present.

3. The method according to claim 2, wherein the forming the plurality of columnar spacers includes forming the columnar spacers at quadruple points between pixel electrodes.

4. The method according to claim 1, wherein the forming the coating material film includes forming grooves, which are shallower than the thickness of the coating material film, at peripheries of the heads of the plurality of the columnar spacers and in regions connecting the peripheries together.

5. The method according to claim 4, wherein the polishing the protruded heads of the columnar spacers includes chemical mechanical polishing.

6. The method according to claim 4, wherein the coating material is photosensitive, and the grooves are formed by selectively exposing the surface of the coating material film to light.

7. The method according to claim 1, wherein the columnar spacers are made of inorganic insulating material, and the coating material is an organic material.

8. The method according to claim 1, wherein the columnar spacers are made of one of silicon nitride and silicon oxynitride.

9. A method of manufacturing a display device, comprising:

preparing a matrix substrate, the preparing the matrix substrate comprising:

forming a plurality of columnar spacers, having heads, on a surface of a substrate on which a plurality of pixel electrodes are present;

forming a coating material film, having a flat upper surface, on the surface of the substrate on which the plurality of columnar spacers are formed, so that the heads of the columnar spacers protrude from the flat upper surface of the coating material film; and

polishing the protruded heads of the columnar spacers using the surface of the coating material film as a reference until top faces of the columnar spacers are flush with the flat upper surface of the coating material film; and

bonding the matrix substrate having the plurality of columnar spacers with the polished top faces to an opposing substrate such that a gap between the substrates is maintained by the columnar spacers.